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Accounting education literature review (2019)

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ABSTRACT

This review of the accounting education literature includes 81 articles published during 2019 in five accounting education journals: (1) *Journal of Accounting Education*, (2) *Accounting Education*, (3) *Advances in Accounting Education: Teaching and Curriculum Innovations*, (4) *Issues in Accounting Education*, and (5) *The Accounting Educators' Journal*. We update 14 prior accounting education literature reviews by organizing and summarizing contributions to the accounting education literature made during 2019. Articles are categorized into five sections corresponding to traditional knowledge bases: (1) curriculum and instruction, (2) instruction by content area, (3) educational technology, (4) students, and (5) faculty. We summarize and critique the research rigor of the empirical articles. Suggestions for research are presented. Articles classified as instructional resources and cases published in the same five journals during 2019 are tabulated in appendices categorized by the appropriate content area.

1. Introduction

This review of the accounting education literature includes 81 articles published during 2019 in five accounting education journals: (1) *Journal of Accounting Education*, (2) *Accounting Education*, (3) *Advances in Accounting Education: Teaching and Curriculum Innovations*, (4) *Issues in Accounting Education*, and (5) *The Accounting Educators' Journal*.[1] This review article is the 15th in a series of accounting education literature reviews first published in 1986 (summarized in Table 1). Table 2 reports the accounting education journals reviewed since 1991.[2] We classify a published article as empirical, descriptive, instructional resource, or case. Empirical and descriptive articles are summarized in the body of the article; instructional resources and cases are tabulated in Appendix A and B, respectively. Consistent with prior reviews, an empirical article is one in which conclusions are derived from statistical analysis of data. Articles that discuss a strategy, describe an innovation, or report student perceptions (without statistical analysis) are classified as descriptive. Table 3 summarizes commonly used abbreviations and corresponding definitions used throughout this article. For readability, all percentages reported herein are rounded.

We tabulated author count by article type in Table 4. The 81 articles published in accounting education journals in 2019 reflected the authorship of 193 individual authors. An analysis of the author count by article type is presented in Table 4. We

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[1] *Global Perspectives on Accounting Education* was included in prior accounting education literature reviews (Table 1), but has not published an issue since 2017.

[2] We intentionally limit our analysis to those journals that have accounting education as a primary orientation, although accounting education articles may appear in journals not included in our review. For example, Bernardi et al. (2016) reviewed accounting education research in 13 journals.

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Table 1
Accounting education literature review series.

Reference	Time period covered
1. Apostolou, Dorminey, and Hassell (2020)	2019
2. Apostolou, Dorminey, Hassell, and Hickey (2019)	2018
3. Apostolou, Dorminey, Hassell, and Rebele (2018)	2017
4. Apostolou, Dorminey, Hassell, and Rebele (2017)	2016
5. Apostolou, Dorminey, Hassell, and Rebele (2016)	2015
6. Apostolou, Dorminey, Hassell, and Rebele (2015)	2013–2014
7. Apostolou, Dorminey, Hassell, and Watson (2013)	2010–2012
8. Apostolou, Hassell, Rebele, and Watson (2010)	2006–2009
9. Watson, Apostolou, Hassell, and Webber (2007)	2003–2005
10. Watson, Apostolou, Hassell, and Webber (2003)	2000–2002
11. Apostolou, Watson, Hassell, and Webber (2001)	1997–1999
12. Rebele et al. (1998a)	1991–1997 (part I)
13. Rebele et al. (1998b)	1991–1997 (part II)
14. Rebele, Stout, and Hassell (1991)	1985–1991
15. Rebele and Tiller (1986)	Prior to 1985

Table 2
Journals reviewed in the accounting education literature review series.

	Period covered by review:											
	1991–1997 (a)	1997–1999	2000–2002	2003–2005	2006–2009	2010–2012	2013–2014	2015	2016	2017	2018	2019
Journal of Accounting Education	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Accounting Education	(b)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Advances in Accounting Education: Teaching and Curriculum Innovations	(c)	✓	✓	✓	(d)	✓	✓	✓	✓	✓	✓	✓
Global Perspectives on Accounting Education	(e)	(e)	(e)	✓	✓	✓	✓	✓	✓	✓	(e)	(e)
Issues in Accounting Education	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
The Accounting Educators' Journal	✓	(f)	(f)	(g)	✓	✓	✓	✓	✓	✓	✓	✓

(a) *Accounting Perspectives* was included in the 1991–1997 review, but was excluded thereafter because its focus shifted away from education-related articles.
(b) Not reviewed prior to 1997.
(c) Known as *Accounting Education: A Journal of Theory, Practice, and Research* for the 1991–1997 review.
(d) No issue published in 2006.
(e) No issues published.
(f) Volumes 11, 12, 13, and 14 (1999–2002) not reviewed in this series.
(g) Included in the 2006–2009 review.

Table 3
Summary of common abbreviations.

Abbreviation	Definition
AAB	Accounting advisory board
AACSB	The Association to Advance Collegiate Schools of Business
AIS	Accounting information systems
CPA	Certified Public Accountant
GPA	Grade point average
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
MAcc	Master of accountancy
NASBA	National Association of State Boards of Accountancy (US)
RAT	Readiness assessment tests
TAM	Technology acceptance model
TBL	Team-based learning
WIL	Work-integrated learning
XBRL	eXtensible business reporting language

tabulated coauthorship, which revealed 22% of the articles were sole-authored, 32% had two authors, 30% had three authors, and 16% had four or five coauthors.

Article type and subject area corresponding to the organization of this review for each of the five journals are listed in Tables 5 and 6. Table 5 presents a classification of the 81 articles as empirical and descriptive (n = 55, 68%), instructional resource (n = 8, 10%), or case (n = 18, 22%) by each journal reviewed. Table 6 provides an overview of the number of empirical

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Table 4
Summary of author count by article type.

Article type	Total articles	Author count per article: One author	Two coauthors	Three coauthors	Four coauthors	Five coauthors
Empirical	31	5	11	8	5	2
Descriptive	24	6	6	8	3	1
Instructional resource	8	4	3		1	
Case	18	3	6	8	1	
Total	81	18	26	24	10	3
Percentage of total	*100%*	*22%*	*32%*	*30%*	*12%*	*4%*

Note: 193 individual authors contributed to publishing the 81 empirical and descriptive articles, instructional resources, and cases. During 2019, four authors published two articles, and 189 authors published one article.

Table 5
Article classification by journal.

Journal	Articles summarized: Empirical (a)	Descriptive (b)	Total	Appendix A: Instructional resources (c)	Appendix B: Cases (d)	Grand total
Journal of Accounting Education	8	8	16	2	4	22
Accounting Education	17	9	26	1		27
Advances in Accounting Education: Teaching and Curriculum Innovations	3	4	7	2	1	10
Global Perspectives on Accounting Education (e)						
Issues in Accounting Education		1	1	1	13	15
The Accounting Educators' Journal	3	2	5	2		7
Totals	31	24	55	8	18	81
Percentage of grand total	*38%*	*30%*	*68%*	*10%*	*22%*	*100%*
Comparative prior year data:						
2018 totals	46	22	68	8	25	101
Percentage of grand total	*45%*	*22%*	*67%*	*8%*	*25%*	*100%*
2017 totals	40	21	61	9	33	103
Percentage of grand total	*39%*	*20%*	*59%*	*9%*	*32%*	*100%*

(a) Empirical articles derive conclusions from an analysis of data.
(b) Descriptive articles discuss strategies, describe innovations, or report student perceptions without statistical analysis.
(c) Instructional resources are articles that provide guidance on how to implement teaching strategies or projects.
(d) Cases describe actual or hypothetical situations that require student analysis.
(e) Not published in 2018 or 2019, included here because comparative data includes 2017 articles.

and descriptive articles allocated to subject area for each journal. Two subject areas, curriculum and instruction (n = 23, 42%) and students (n = 17, 31%), account for 73% of the empirical and descriptive articles summarized. The remaining empirical and descriptive articles address educational technology (n = 5, 9%), and faculty (n = 10, 18%). No articles were published in 2019 classified as instruction by content area.

We identified the data collection method, analysis approach, and geographic location of the sample studied for each empirical article by subject area in three separate tables. Table 7 reports the data collection methods used in the empirical articles: survey data (n = 22, 71%), quasi-experiment (n = 5, 16%), published source (n = 3, 10%), and course performance (n = 1, 3%). None of the articles in the current review employed experimental or interview methodologies in data collection. Our analysis of the research rigor of the empirical articles is presented in Section 7.2.

Table 8 reports the five primary analysis approaches used in the empirical articles published in 2019 in order of frequency:[3] (1) regression (n = 14, 45%), (2) analysis of variance (n = 6, 19%), (3) differences-in-means (n = 4, 13%), (4) tabulation (n = 4, 13%), and (5) path analysis (n = 3, 10%). The geographic locations of the samples analyzed in the empirical articles are reported in Table 9 and are classified in five regions: (1) US and Canada (n = 16, 51%), (2) Asia and Africa (n = 5, 16%), (3) Europe (n = 4, 13%), (4) Australia and New Zealand (n = 3, 10%), and (5) multinational (n = 3, 10%).

We classify an instructional resource article as one that describes a strategy used to promote student learning in a content area. We tabulated the eight (10% of 81 total articles) instructional resource articles published in 2019 by five primary content areas in Appendix A. As an example of an instructional resource, Edmonds, Miller, and Savage (2019) presented an audit simulation to teach accounts receivable.

We define a case as an article that presents actual or hypothetical information with questions and activities to encourage contextual learning. The listing of 18 articles (22% of 81 total articles) classified as cases appears in Appendix B, summarized

[3] For studies that used more than one analysis approach, we tabulate the most rigorous.

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Table 6
Number of empirical (E) and descriptive (D) articles by section reference and subject area.

Journal	Section reference and subject area: 2. Curriculum and instruction		3. Instruction by content area		4. Educational technology		5. Students		6. Faculty		Total summarized articles	
	E	D	E	D	E	D	E	D	E	D	E	D
Journal of Accounting Education	1	6			2		3	1	2	1	8	8
Accounting Education	6	7			1	1	9	1	1		17	9
Advances in Accounting Education: Teaching and Curriculum Innovations	1						2			4	3	4
Global Perspectives on Accounting Education (a)												
Issues in Accounting Education										1		1
The Accounting Educators' Journal		2			1		1		1		3	2
Subtotal by article classification	8	15			4	1	15	2	4	6	31	24
Total by section reference and subject area		23				5		17		10		55
Percentage of total		*42%*		*0%*		*9%*		*31%*		*18%*		*100%*
Comparative prior year data:												
2018 totals		23		6		6		13		20		68
Percentage of grand total		*34%*		*9%*		*9%*		*19%*		*29%*		*100%*
2017 totals		20		8		5		16		12		61
Percentage of total		*33%*		*13%*		*8%*		*26%*		*20%*		*100%*

Note: Refer to Table 4 for an overview of article production by journal.
(a) Not published in 2018 or 2019, included here because comparative data includes 2017 articles.

Table 7
Data collection method used in empirical articles (*by frequency count*).

Section reference and subject area	Survey	Course Performance	Published source	Quasi-experiment	Interview	Experiment	Total
2. Curriculum and instruction	6			2			8
3. Instruction by content area							
4. Educational technology	3			1			4
5. Students	11	1	1	2			15
6. Faculty	2		2				4
Totals	22	1	3	5			31
Percentage of total	*71%*	*3%*	*10%*	*16%*	*0%*	*0%*	*100%*
Comparative prior year data:							
2018 totals	28	9	3	1	2	3	46
Percentage of total	*61%*	*19%*	7%	*2%*	*4%*	*7%*	*100%*
2017 totals	21	6	6	3	3	1	40
Percentage of total	*53%*	*15%*	*15%*	*7%*	*7%*	*3%*	*100%*

Table 8
Analysis approach used in empirical articles (*by frequency count*).

Section reference and subject area	Regression	Differences-in-means	Tabulation	Analysis of variance	Path Analysis	Total
2. Curriculum and instruction	1	2	2	1	2	8
3. Instruction by content area						
4. Educational technology	3	1				4
5. Students	7	1	1	5	1	15
6. Faculty	3		1			4
Totals	14	4	4	6	3	31
Percentage of total	*45%*	*13%*	*13%*	*19%*	*10%*	*100%*
Comparative prior year data:						
2018 totals	19	11	8	8	0	46
Percentage of total	*42%*	*24%*	*17%*	*17%*	*0%*	*100%*
2017 totals	17	12	7	4	0	40
Percentage of total	*43%*	*30%*	*17%*	*10%*	*0%*	*100%*

Note: Path analysis includes one article that uses structural equation modeling (SEM).

Table 9
Geographic location of sample used in empirical articles (*by frequency count*).

Section reference and subject area	US and Canada	Australia and New Zealand	Europe	Asia and Africa	Multinational	Total
2. Curriculum and instruction	5		2	1		8
3. Instruction by content area						
4. Educational technology	3			1		4
5. Students	7	3	2	2	1	15
6. Faculty	1			1	2	4
Totals	16	3	4	5	3	31
Percentage of total	*51%*	*10%*	*13%*	*16%*	*10%*	*100%*
Comparative prior year data:						
2018 totals	25	6	7	7	1	46
Percentage of total	*55%*	*13%*	*15%*	*15%*	*2%*	*100%*
2017 totals	29	4	6	1	0	40
Percentage of total	*73%*	*10%*	*15%*	*2%*	*0%*	*100%*

one of five primary content areas to which the case relates.[4] As an example, Jones, Long, and Stanley (2019) presented case materials to assist in reviewing the accounting cycle.

Seven special themes were highlighted in the accounting education journals in 2019. Topics covered in the special-theme issues (or sections within issues) included 18 articles and one case. The special themes cover a variety of issues and are summarized in the relevant topical area:

[4] The University of Notre Dame provides a searchable database that includes cases published in *Issues in Accounting Education*, the *IMA Educational Case Journal*, the *Journal of Accounting Education,* and *Accounting Perspectives* (http://www.cases.ndacct.com/).

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Table 10
Overview of curriculum and instruction articles (Section 2).

	Reference	Type*	Topic
2.1.	***Curricular issues***		
	Boyce et al. (2019)	D	Status of curriculum in Australia and New Zealand
	Rakow (2019)	E	Integrating financial literacy in the curriculum
	Richardson and Shan (2019)	E	Need for data analytics in the accounting curriculum
	Stanley and Xu (2019)	D	Work-integrated learning in the curriculum
	Wulandari and Ali (2019)	E	XBRL in the accounting curriculum
2.2.	***Core competencies***		
	Douglas and Gammie (2019)	D	Nontechnical skill development
	Fogarty (2019)	D	Commentary on Rebele & St. Pierre (2019)
	Holmes et al. (2019)	E	Teaching strategies to improve business writing
	Lee et al. (2019)	D	Game-based learning to teach spreadsheet competency
	Liu et al. (2019)	D	Strategies to improve writing self-efficacy
	Morrill (2019)	D	Competencies of internationally educated accountants
	Plant et al. (2019)	D	CPE for early career internal auditors
	Rebele & St. Pierre (2019)	D	Tradeoff of teaching technical and soft skills
	van der Kolk (2019)	D	Ethics coverage in accounting textbooks
2.3.	***Instructional approaches***		
	Butler et al. (2019)	D	Experiential education framework
	Calabor et al. (2019)	D	Serious Games in accounting education
	Christensen et al. (2019)	E	Team-based learning in introductory classes
	Freeman and Burkette (2019)	D	Storytelling to promote active learning
	Miley and Read (2019)	D	Pragmatic postmodernism approach to teaching online
	Obdecam & Everaert (2019)	E	Choice-based learning
	Silva et al. (2019)	E	Game-based learning
	Tan (2019)	E	Case-based teaching
	Wang et al. (2019)	D	Project-based learning with the A3 planner

* Empirical (E) or descriptive (D) article.

1. 2016 RMIT Accounting Educators' Conference: "Accounting Education what it is, and what it is not," *Accounting Education* (Volume 28, No. 2).
2. 2017 Teaching, Learning and Curriculum Midyear Colloquium, *Journal of Accounting Education.*[5]
3. Capacity Building and Program Leadership, *Advances in Accounting Education: Teaching and Curriculum Innovations* (Volume 23).
4. Classroom Instruction and Pedagogy, *Advances in Accounting Education: Teaching and Curriculum Innovations* (Volume 23).
5. Developing Accounting Students' Soft Skills versus Technical Competency, *Journal of Accounting Education.*
6. Engagement with Professionals through Advisory Councils, *Advances in Accounting Education: Teaching and Curriculum Innovations* (Volume 23).
7. Preparing Students for Careers with Big Data, *Journal of Accounting Education.*

An editor's use of special issues with guest editors is a meaningful way to bring attention to current topics and stimulate scholarship and teaching innovation.

This accounting education literature review is organized by five major sections corresponding to traditional lines of inquiry. Section 2 summarizes articles on curriculum and instruction. Section 3 summarizes articles on instruction by content area, and Section 4 summarizes articles about educational technology. Section 5 summarizes articles about students, followed by articles about faculty in Section 6. In Section 7, we offer a summary and reflections, along with suggestions for future accounting education scholarship.

2. Curriculum and instruction

This section summarizes 23 articles, eight empirical and 15 descriptive, that address curricular issues, core competencies, and instructional approaches. No articles were published on assessment or assurance of learning. This section contains 42% of the empirical and descriptive articles reviewed in 2019, a notable increase when compared to 34% and 33% in the 2018 and 2017 reviews, respectively. Table 10 presents a topical summary of the reviewed articles related to curriculum and instruction.

[5] *Journal of Accounting Education* changed to a virtual format for special issues in 2019, with articles published online as they are completed.

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2.1. Curricular issues

Rakow (2019) examined the efficacy of incorporating financial literacy education in two sections of intermediate I (n = 88, 85% response rate), two sections of intermediate II (n = 130, 85% response rate), and one section of an MBA financial accounting course (n = 44, 94% response rate) at a US university. In the intermediate I course, topics such as credit scores, credit reports, credit cards, budgeting, and automobile purchases were covered. In the intermediate II course, topics such as buying a home, investing, and retirement were covered. The MBA course covered all financial literacy topics. Financial literacy material was considered supplemental, and no more than five minutes in any one class session was dedicated to those topics. Pre- and post-surveys were administered at the beginning and conclusion of the semester in each course, and questions were tailored for each course. An analysis of differences in mean scores (matched by individual) revealed improvement in financial literacy in all three groups (intermediate I, intermediate II, MBA). The author indicated that including supplemental financial literacy topics in coursework may facility graduates' ability to meet the growing demand of personal financial advice in the accounting profession.

Boyce, Narayanan, Greer, and Blair (2019) investigated the current status of accounting education reform by analyzing the curriculum of 31 Australian and eight New Zealand universities. Boyce et al. (2019, 277) noted few changes have been made to the technical focus on accounting, which "leaves accounting education largely devoid of meaningful attention to wider contextual, social, environmental, ethical, and cultural dimensions of accounting and accountability." The authors put forth and argued for a general, liberal education and a sociologically informed accounting curriculum. From the schools' websites, the authors documented instances of the following terms about accounting curriculum—ethics, social, society, environment, and sustainability—and how terms were used in the schools' materials. The authors noted that the sociological approach could be used in accounting curriculum development.

Wulandari and Ali (2019) surveyed Indonesian accounting lecturers (n = 104, 80% response rate) regarding the intention to integrate eXtensible Business Reporting Language (XBRL) into the accounting curriculum. The technology acceptance model (TAM), which describes behavior toward technology, testing two beliefs (perceived usefulness and perceived ease of use) was used as motivation. For the sample, 19% of the programs had incorporated XBRL into the curriculum, primarily in an accounting information systems course, and 81% had not. Data on experience, subjective norms, computer self-efficacy, perceptions of internal control, computer anxiety, and computer playfulness were gathered as inputs into the model. Interested readers will need to read the article to obtain a thorough understanding of the model and results. Structural equation modeling was used, and many results were reported. For example, computer self-efficacy, perceptions of internal controls, computer anxiety, and computer playfulness were associated with perceived ease of use in the TAM.

Stanley and Xu (2019) explored work-integrated learning (WIL) among Australian universities. Motivated by calls among professional accounting organizations for greater adoption of WIL into accountancy degree programs, three research questions were explored to examine (1) the current forms and extent of WIL programs among accountancy programs (RQ1), (2) the future role of WIL in accountancy programs (RQ2), and (3) the challenges of managing and implementing WIL (RQ3). A survey of open-ended questions was administered to accountancy heads, chairs, and/or the equivalent (n = 25, 62% response rate) to gather their perspectives on WILs related to the 2012 academic year. Survey responses were coded and collated to develop themes. Results indicated that the most prevalent form of WIL was work placement, followed by internships. Other themes that surfaced included strong support and agreement on the value of WILs for student development, emphasis that WILs should be assessed, and belief that WILs enhanced the quality of accountancy programs. However, given challenges in managing these programs, the respondents suggested that WIL should be offered as an elective. The authors identified lack of resources and employer participation as challenges to successful implementation.

Richardson and Shan (2019) surveyed accounting department chairs (n = 159, 17% response rate), as identified in the Hasselback Accounting Faculty Directory (2020) for the years 2016–2017, to explore the perceived necessity of including data analytics in the accounting curriculum. Results showed that 91% reported that data analytics should be included in the accounting curriculum, and 59% intended to add a data analytics course within the next five years. The majority also preferred a data analytics course that was specific to accounting, and believed that data analytics will be incorporated throughout the accounting curriculum and in a separate data analytics course.

2.2. Core competencies

Rebele and St. Pierre's (2019) commentary addressed accounting faculty using learning objectives related to the tradeoff between developing students' soft skills and technical skills. Recently, professional organizations and position statements have stressed additional emphasis on developing soft skills. The authors' conclusion was not what many accounting faculty would have supposed, suggesting more emphasis on technical skills and less emphasis on soft skills:

> We suggest in this article a rebalancing of learning objectives for accounting education programs. Specifically, we argue that learning objectives for accounting education programs should deemphasize soft skills development and refocus, instead, on developing students' technical competence. In our opinion, lessening demands to develop students' soft skills and refocusing on what should be the primary learning objective for accounting education, which is to teach accounting with the required technical focus, will improve the educational experience for our students and prepare them to be more accomplished and valuable accounting professionals (Rebele& St. Pierre's, 2019, 73).

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The article provided extensive discussion regarding critical thinking, ethics, communication skills, and discussed the question whether accounting professors are qualified to teach these skills. The authors concluded:

> We believe that the accounting profession has not clearly identified those soft skills most needed by accounting graduates, nor have accepted definitions of these skills been established. Instead, the profession has provided a laundry list of skills that even seasoned executives may not possess, and opined that accounting education programs should develop these skills in students. We have expressed doubt that even the most commonly discussed soft skills, including critical thinking, communication, and ethics, can be developed in most undergraduate accounting students and whether accounting faculty have the ability to help students develop these skills (Rebele& St. Pierre's, 2019, 73).

Accounting faculty will find the commentary and discussion of great interest as accounting faculty continue to wrestle with the emphasis on teaching soft skills and technical skills.

Fogarty (2019) responded to Rebele and St. Pierre (2019), who discussed the tradeoff that accounting faculty make in teaching technical accounting skills and soft skills. Fogarty was supportive of many, but not all, of the comments. He used a Wizard of Oz metaphor to comment in a variety of ways on Rebele and St. Pierre. Fogarty's article is not easily summarized; faculty need to read it to understand and appreciate the wide-ranging comments made and implications for curricular change.

Morrill (2019) described a program of assimilating internationally educated accountants into the Canadian domestic professional environment that was focused on bridging soft professional and social skills. The recommended program began with assessing the internationally educated accountants' professional and social skills starting point, and created a tailored training program to address the development of soft skills, cultural literacy, resume writing, and interview skills. The accountants were then exposed to a Canadian job experience, often through cooperative education placements.

Douglas and Gammie (2019) examined the development of nontechnical skills in Scottish undergraduate accounting programs with two research objectives: (1) critically compare the perceptions of nontechnical skills developed at university by accounting versus non-accounting graduates, and (2) explore institutional practices that lend to the development of nontechnical skills in Scottish undergraduate accounting programs. A questionnaire was used to survey UK Big 4 trainees (n = 574, 18% response rate) at the Institute for Chartered Accountants of Scotland in 2012; respondents were asked to rate how well their respective universities developed 31 nontechnical skills identified by the International Federation of Accountants (IFAC). The survey of graduates' perceptions was coupled with interviews of eleven (n = 11) academic department heads or leads of undergraduate accounting programs in Scotland to discuss institutional issues surrounding development of nontechnical skills. Overall survey results indicated that both accounting and non-accounting graduates believed nontechnical skills, across all four categories (personal, intellectual, project management, decision making) were developed at their university. Among the 31 skills, the ability to self-learn was rated highly by both accounting and non-accounting graduates as having been developed through their education. Difference in means tests were used to compare accounting and nonaccounting graduates. Nonaccounting graduates had higher ratings for perceived development of intellectual skills than accounting graduates. Interviews strongly emphasized focus on development of communications and teamwork skills. Interviews also substantiated perceptions of lesser development of intellectual skills (key skills for today's accounting graduates) among accounting graduates. Specifically, interviewees pointed out that intellectual skills for accounting majors are typically developed later in their programs, which face substantial pressure to meet accreditation requirements. The authors suggested that accounting graduates might be at a disadvantage, as compared to non-accounting graduates from programs that are not subjected to similar constraints.

van der Kolk (2019) argued for improved consideration of ethical issues in management accounting education, noting that the accounting education literature tends to overemphasize financial accounting. He employed content analysis to summarize the extent of ethics coverage in five popular management accounting textbooks published since 2000, and concluded that ethics issues were underemphasized in the textbooks evaluated.

Lee, Shifflett, and Downen (2019) described how to teach spreadsheet competency with Microsoft Excel using game-based learning. The emphasis of the teaching strategy was on Excel shortcuts. The activities are appropriate for AIS, auditing, or managerial accounting courses.

Holmes, Zhang, and Harris (2019) examined the effects of varying levels of instruction on students' improvement in business writing. A quasi-experimental pre- and post-test design was used, with three hypotheses. Undergraduate students (n = 104, 100% response rate) enrolled in sections of fundamentals of managerial accounting and financial administration of business courses at a US university participated. Testing included a writing rubric, a 20-minute pre-assessment writing task, graded feedback on the task, and the following treatments: (1) low instruction that consisted of only the rubric and graded feedback, (2) medium instruction that consisted of the rubric, graded feedback, and supplemental handouts, and (3) high instruction that consisted of the rubric, graded feedback, supplemental handouts, and class instruction dedicated to business writing. Analysis of variance results on the changes in mean scores between the pre- to post-assessments were associated with significant improvement in all assessed writing components. However, regression results of changes in scores for each student revealed that the improved scores between the low- and medium-instruction groups were not significant. Among students who received high instruction, regression results were associated with significant improvement in two ways. First, the high-instruction group scores improved to be comparable to the medium-instruction group after classroom instruction, despite having underperformed medium-instruction group in the pre-assessment. Second, compared to the low-instruction group, students who received high instruction had the greatest improvement and scored significantly

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higher than those with low instruction. The authors indicated the results supported the hypothesis that classroom instruction, in addition to supplemental handouts, rubrics, and feedback, can contribute to greater levels of writing improvement.

Liu, Xu, and Krahel (2019) observed that the lack of motivation on writing assignments by accounting majors was at least partially attributable to the low writing self-efficacy, "students' beliefs about their ability to complete writing assignments and to master writing skills via these assignments." They identified four sources of self-efficacy (mastery experience, vicarious experience, verbal persuasion, physiological state), and they recommended 10 specific actions that educators can adopt to exert a positive influence on writing self-efficacy.

Plant, Barac, and Sarens (2019) investigated the continuing professional education (CPE) of early career South African internal auditors. Semi-structured interviews were conducted with 16 individuals from three groups: internal audit employers, early career internal auditors, and representatives of the Institute of Internal Auditors South Africa, IIA (SA). Questions related to 11 themes and 24 sub-themes. The authors reported results related to three challenges in the workplace: learning environment complexity (changing landscape of internal auditing, and lack of organizational commitment), resource limitations (cost and time), and different management styles (working with and being evaluated by different managers). The article provided a large amount of descriptive information about CPE for South African internal auditors.

2.3. Instructional approaches

Christensen, Harrison, Hollindale, and Wood (2019) studied whether team-based learning (TBL) would improve student attitudes and perceptions related to teamwork and learning in introductory accounting classes. Four research questions were addressed on TBL and its effects on student perceptions and attitudes towards the following: (1) learning accounting; (2) using the teamwork experience as a learning tool; (3) personal ability to work effectively in diverse teams; and (4) preference to identify with one of five roles that that typically emerge in teams (e.g., task leader). The authors implemented a four-stage TBL strategy, consisting of (1) team formation, (2) flipping the classroom, (3) conducting individual and team readiness assessment tests (RATs) on class material, and (4) conducting formative assessment based on instructor and student feedback. A quasi-experimental approach was employed in introductory financial accounting and managerial accounting classes attended by undergraduate and postgraduate students (n = 210 matched pairs, 48% response rate) at an Australian university. Comparison of means using paired t-tests of pre- and post- survey questions revealed that most student perceptions and attitudes towards learning accounting declined, but that TBL also was associated with reduced existing negative perceptions towards accounting. Moreover, the TBL experience was associated with improved attitudes towards accounting among students majoring in quantitatively based degrees. The authors indicated that the overall results showed that the TBL experience did not spark significant interest among students to use TBL as a learning tool for accounting. However, TBL was associated with greatly enhanced student abilities to work in diverse teams and improved individual teamwork skills. Lastly, the authors concluded that TBL was highly effective in the development of students' leadership abilities in various roles, particularly as task leader and socio-emotional leader, suggesting that TBL could be a potentially effective learning tool to enhance the employability of students.

Miley and Read (2019) introduced a pragmatic postmodernism approach to teaching accounting to online learners at a single UK university. In a principles of accounting course, a semester-long module used the principles of pragmatic postmodernism. The approach blended the realistic constraints in teaching accounting with postmodern education philosophy, which is grounded in fostering creativity and in allowing the individual learner to develop through a process of self-discovery. The authors provided rich discussion on postmodernism versus modernist education; the postmodern approach may serve as a means to encourage a culture of creativity and to address negative student perceptions towards the accounting discipline and profession. The first layer, *The Absolute Basics*, addressed basic accounting knowledge and skills. In the second layer, *Going Deeper*, students had the option of pursuing and sharing additional information online. The third layer, *Design your own course*, offered the option to suggest additional topics to explore relevant to students' workplace experience. Under the pragmatic postmodernism approach, students were allowed to have ownership in their own learning process through three layers offered throughout the course: (1) regular group discussion on *The Absolute Basics* emphasized the role of accounting in decision making; (2) the option to explore by *Going Deeper* on specific topics in accounting primarily through websites or YouTube videos; and (3) the option to *Design your own course* that encouraged students to suggest new accounting topics, share work experiences, and react to online posts by peers. Students' provided self-assessments throughout the course, which the authors indicated reflected a major and positive shift before, during, and after the course, towards accounting, with many enthusiastic comments documented by the authors.

Calabor, Mora, and Moya (2019) gathered perceptions on using Serious Games (SG) in accounting education. Accounting educators, presumably from Spanish universities, teaching full-time with at least five years of undergraduate teaching experience served as a panel of experts to offer their opinions on *Platform Wars Simulation* (PWS), a multi-sided market simulation game created by the Massachusetts Institute of Technology (MIT). Responses indicated little agreement on the learning objectives and the suitability of PWS for undergraduate accounting courses. Finally, time constraints and incentives of faculty to learn and to adopt SGs were identified as major barriers to implementation.

Opdecam and Everaert (2019) investigated the use of choice-based learning, a choice between lecture-based format or team-based format for tutorials. Data for eight years (2008–2016) for first-year freshman students in a 2nd semester

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financial accounting course at one university in Belgium were used. Classes were taught in Dutch. All students (n = 2,756) had the same weekly theoretical lecture, and students were given the choice of participating in lecture-based tutorial (n = 1,955) or team-based tutorial (n = 801). The design was between subjects, quasi experimental, pretest/posttest, with grade on the final exam the dependent variable and gender and first semester GPA (excluding the grade in the first accounting course) as control variables. Final exam grade was significantly associated with format choice after controlling for gender and GPA. The mean final exam score for team-based learning was significantly higher than for lecture-based learning, and GPA was significantly different (higher for lecture-based learning). A great deal of descriptive information was provided about students' answers to survey questions about satisfaction with the format choice.

Wang, Tsiligiris, and Hartley (2019) evaluated the use of the A3 planner in project-based learning. The A3 planner is a project management technique used by Toyota, which captures all aspects of an issue on a single piece of paper (Chakravorty, 2009). Undergraduate students (n = 100, 56% response rate) in the UK in two different full-year accounting and finance modules (Level 1 and Level 2) participated in a survey about the A3 process. Students were provided with an assignment brief and marking grid, training on how to use the A3 planner in a group project, and electronic copies of the A3 planner. Most of the students (72%) strongly agreed or agreed that the A3 process provided a clear picture of the assignment requirement, early identification of missing knowledge/roadblocks/issues, and facilitated allocation of group tasks.

Silva, Rodrigues, and Leal (2019) used flow theory to investigate if games were associated with academic performance of Portuguese undergraduate students.[6] Game-based learning is an approach to help students learn to solve problems. First-year students in accounting (n = 816) and marketing (n = 195) classes, overall response rate 28%, from 20 different Portuguese institutions completed an online questionnaire. Data for 42 questions representing seven dimensions of Flow were collected, and structural equation modeling was used. Several dimensions were significantly associated with Flow (concentration, clarity, challenge, autonomy, social interaction, and perceived learning). The article provided a great deal of information about Flow, game-based learning, and the specific games used.

Tan (2019) described a collaborative learning process to help students learn how to use case-based materials in an undergraduate accounting class. The process used collaborative, structured activities, which Tan labeled structured collaborative learning. Students (n = 111) in an advanced managerial course at a Canadian university participated. One group of students assumed the role of consultants, and other students assumed the role of stakeholder. The consultant group prepared and analysis and recommendation based upon case materials. Assessments for both consultant and stakeholder groups included group responses and individual responses. Groups were formed based upon an initial survey with questions including exposure to case-based courses and work experience. Using a retrospective pretest design (both pretest and posttest data compiled after an intervention), students replied to 12 questions about the student's knowledge and skills, the structured collaborative learning approach, and the course. All questions showed significant differences between pretest and posttest responses. Students attributed the change in responses (1) mostly to the cased-based class (52%) and partly due to the case-based class and partly due to other factors (42%), with some other response (6%). The article provided additional exposition that could be useful to faculty who want to incorporate case-based teaching into an undergraduate accounting class.

Butler, Church, and Spencer (2019 presented a framework for experiential education in accounting. An overview of the model within the accounting context was discussed, including the key questions to assess if the learning milestones of reflect, do, think, and apply were achieved. The authors provided guidance on adapting existing course materials and tasks to an experiential framework.

Freeman and Burkette (2019) discussed how storytelling could be used as an experiential tool to promote active learning in the classroom. They discussed storytelling as a pedagogical tool and noted that as an experiential tool storytelling can reduce depersonalization, increase motivation, enhance cognition, and stir emotion. They discussed the uses of storytelling, the benefits, and the difficulties.

3. Instruction by content area

No empirical or descriptive articles were published in the category of instruction by content area for the first time since the category has been included in these reviews. However, Appendix A provides summarizes eight instructional resources articles in five content areas, which can be used by faculty to enhance delivery in specific topics. Appendix B tabulates 18 cases by five content areas.

4. Educational technology

Table 11 provides an overview of five (9%) educational technology articles, four empirical and one descriptive, published in 2019. Articles in this subject area in the prior two years constituted 9% (2018) and 8% (2017), consistent with the current year. Topics in 2019 address alternative delivery methods, technology integration in the curriculum, and use of YouTube videos.

[6] Flow theory was developed by psychologist Csikszentmihályi (2008). Details of flow theory are available at: https://positivepsychology.com/mihaly-csikszentmihalyi-father-of-flow/.

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Table 11
Overview of articles about educational technology (Section 4).

	Reference	Type*	Topic
4.1.	***Technology and curricular issuessystems***		
	Kotb et al. (2019)	D	Technology development in accounting curriculum
	McCarthy et al. (2019)	E	Course delivery mode and student performance
4.2.	***Technology-based learning and assessment***		
	Coetzee et al. (2019)	E	Technology access importance to learning
	D'Aquila et al. (2019)	E	Effectiveness of instructor YouTube videos
	Jares et al. (2019)	E	Effectiveness of online adaptive learning technologies

* Empirical (E) or descriptive (D) article.

4.1. Technology and curricular issues

McCarthy, Kusaila, and Grasso (2019) examined student performance in auditing and intermediate accounting III courses at one US institution based on three different delivery modes of instruction (face-to-face, online, and hybrid) across nine sections of auditing (n = 229 students, 100% response rate) and ten sections of intermediate accounting III (n = 220 students, 100% response rate). Use of common instructors for each type of course, content, graded assignments, and exams maintained instructor consistency across delivery mode. The administration of exams varied slightly by course and delivery mode. In intermediate accounting III, students took four exams by paper-and-pencil (first semester only) and online across all delivery modes. In auditing, students took three exams by paper-and-pencil for the face-to-face and hybrid delivery modes and online for the online delivery mode. Regression was used with student performance as the dependent variable and various control variables (age, gender, ethnicity, full/part-time, internship that semester, number of transfer credits, total credits earned, and GPA at beginning of semester) were included. Categorical variables were used for delivery format. Exams and quizzes in intermediate III for each delivery method were the same, with students taking exams online. For auditing, the face-to-face and hybrid courses had in-class exams, while online students took an online exam, and homework was completed online for all three class formats. Regression results for the intermediate accounting III course indicated the online and hybrid delivery modes were significantly and positively associated with exam averages. However, for the auditing course, online and hybrid delivery modes were not significant. GPA was significant for both courses. In separate regression analysis introducing the interaction between delivery mode and GPA, the interaction was significant for online mode and GPA for both intermediate III and audit course, and hybrid mode and GPA were significant for intermediate III, but not auditing.

Kotb, Abdel-Kader, Allam, Halabi, and Franklin (2019) investigated technology development in accounting curriculum in Britain and the Republic of Ireland. An online questionnaire was used (n = 212, 20% response rate), with responses from 83 universities, and later semi-structured interviews were conducted (17 of questionnaire respondents). The questionnaire included seven questions related to integrating IT developments into accounting curricula (e.g., to make accounting graduates more desirable in the marketplace), and eight questions related to impediments for integrating IT into the accounting curricula (e.g., lack of academic staff competent to teach IT). The article provided a rich set of descriptive data related to IT adoption. The authors concluded that IT developments should be implemented across the curriculum and that accreditation requirements and lack of qualified/interested staff impede covering IT developments.

4.2. Technology-based learning and assessment

Coetzee, Leith, and Schmulian (2019) surveyed first year accounting students (n = 854, 44% response rate) at a South African university to assess the association between socio-economic background and access to technology in their learning endeavors. Students were asked about access to hardware (e.g., computer, tablet, and cell phone), whether the hardware was university sourced or personally owned, and how the hardware was used to access communication, social media, and internet resources. South Africa provides a list of schools that reflect socio-economic status (quintiles, 1–4 lower income; quintile 5, higher income). The quintile rank of the high school from which the student graduated served as the proxy for socio-economic status. Differences-in-means analysis revealed that higher socio-economic background was associated with greater access to hardware and the tendency to use of technology to access communication, social media, and internet resources more extensively. The authors indicated that limitations in accessing technology resources may lead to diminished learning outcomes and tacit social exclusion, which suggested that the students from certain socio-economic strata may require additional support to complete their studies, thereby overcoming the associated social exclusion.

D'Aquila, Wang, and Mattia (2019) assessed the effectiveness of instructor generated YouTube videos in an accounting principles class in the US. Survey data about student engagement (two questions), motivation (two questions), and perception (four questions) were gathered for 246 students, of whom only 16% were accounting/finance majors, in a required introductory accounting class during 2014–2018. The initial survey was used in 2014–2015 (n = 101), and then the survey was expanded in 2016–2018 (n = 145). Some students participated in a traditional class (n = 193), and some in a hybrid class (n = 53). YouTube analytics provided additional information. Descriptive survey data were provided. Multiple regression (three models) was used, with student performance the dependent variable (three measures), watch videos or not an inde-

Table 12
Overview of articles about students (Section 5).

	Reference	Type*	Topic
5.1.	***Academic major and career issues***		
	Ahinful et al. (2019)	E	Academic performance of students in Ghana
	Christensen and Rhoades-Catanach (2019)	E	Benefits of doctoral consortia to students' careers
	Crawford and Wang (2019)	E	Graduate job placement at investment banking firms
	Gaynor et al. (2019)	E	CPA pass rates for in-state vs. out-of-state candidates
	Wells (2019)	D	Contact with accountants influences perceptions
5.2.	***Student skills and characteristics***		
	Bailey (2019)	E	Joint effects of narcissism and psychopathy
	Smith et al. (2019)	E	CDRISC-10 questionnaire for stress coping ability
5.3.	***Approaches to learning and assessment***		
	Beatson et al. (2019)	E	Student mindset and self-efficacy and course grade
	Bobe and Cooper (2019)	E	Native English speakers, learning, and satisfaction
	Dong et al. (2019)	E	Deep and surface learning of Chinese students
	Fortin et al. (2019)	E	Student satisfaction with course delivery formats
	Helfaya (2019)	E	Computer-based assessment and feedback
	Mesa (2019)	D	Understanding how students learn data analytics
	Nouri and Domingo (2019)	E	Gender and transfer student performance
	Precourt and Gainor (2019)	E	Class participation associated with course grade
	Stephenson (2019)	E	Learning style and preferred assessments
	Williams et al. (2019)	E	Student reaction to flipped classroom

* Empirical (E) or descriptive (D) article.

pendent variable, and six control variables (major, course format, athlete, required class, gender, and a variable for selection bias). The results indicated that student performance was associated with watching the videos and course format for all three models.

Jares, Wilcox, Cahalan, and Dickey (2019) surveyed seniors (n = 40) enrolled in two separate courses, one accounting and one finance, at a regional mid-western US university about their perceptions of an online adaptive learning technology (OALT) tool used in conjunction with traditional course layout. Surveys were completed during class time in the 5th, 10th, and 15th week of classes. The survey included 13 questions using a five-point scale and assessed students' perceptions of being prepared for class, the usefulness of the tool, if they liked the tool, if they felt more engaged because of the tool, and if the students consistently used the tool. Information retention was measured based on student performance on in-class assessments. Students' GPA was assigned to three tercile levels, one for lower third GPA, middle third GPA, and highest third GPA, and GPA was used as a control variable. Five separate regression models were used to explore the associations among the variables. Each of the regression models was estimated separately using the data obtained from the 5th, 10th, and 15th week. Results showed that students in the middle-third GPA reported higher perceived benefits the OALT tool than did the lowest-third GPA and highest-third GPA students. Students who reported improved preparation resulting from the OALT also reported higher engagement in the course.

5. Students

Table 12 identifies 17 articles (15 empirical and two descriptive) about students, classified by academic major and career, student skills and characteristics, and approaches to learning and assessment. This section includes 31% of the articles published in 2019. Comparable production for 2018 (19%) and 2017 (26%) shows a strong focus on students for the current year across geographic areas. Topics include CPA exam, attitudes about the accounting major, creativity, country-specific student issues, and gender differences associated with learning.

5.1. Academic major and career

Gaynor, Korb, Gerlowski, and Zhang (2019) investigated state-level performance on the CPA exam for in-state versus out-of-state testees. NASBA data for 913,741 CPA exam attempts for 2013–2016 were used, comprising 204 state-year observations. States were identified as 120- hour and 150-hour states, based upon requirement to sit for CPA exam. Four classifications were used for each state based upon which Prometric testing facility[7] the candidate took the exam:

(1) In-state applicant. Candidate applies for and sits for exam in that state.
(2) Out-of-state applicant. Candidate applies to sit for exam in one state and sits for the exam in another state.
(3) In-state-testee. Sits for the exam in a Prometric facility in the state of application.
(4) Out-of-state-testee. Sits for the exam in a Prometric facility not in the state of application.

[7] https://www.prometric.com/.

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Because students can choose a testing center in the same or different state in which they apply to sit for the CPA exam, the percentage of in-state applicants and in-state testees could range from zero to 100%. An in-state applicant-in-state-testee would be one who took the CPA exam in the state of application.

Additionally, two other classifications were measured:

(1) Importer. Number of exam attempts by in-state-applicants is greater than the number of exam attempts by in-state-testees.
(2) Exporter. Number of exam attempts by in-state-applicants is less than the number of exam attempts by in-state-testees.

Extensive descriptive information was presented by jurisdiction (state). Regression was used for several analyses, with pass rate difference (in-state applicant pass rate vs. in-state-testee pass rate) and importer percentage as dependent variables, and independent variables were120-hour exam state, if the state allows candidate to sit with 120 h, state GDP, total number of Big 4 offices in the state, and number of instate testing centers. Extensive descriptive information was presented that is not easy to summarize. Accordingly, interested faculty would need to read the paper to access all the information provided. For example, the results documented a significant association between states being 120-hour/150-hour and being a net importer/exporter.

Wells (2019) studied how contact with accountants might change one's understanding of accounting. Three research questions were explored: (1) how people who have had contact with accountants construct their understanding of accounting, (2) how people who have had no contact with accountants construct their understanding of accounting, and (3) how contact with accountants influences these perceptions. Participants (n = 32) from the Auckland, New Zealand community were selected to provide equal representation in two groups of sixteen: (1) those who received accounting services and (2) those who had not. All participants were administered a survey, adapted from Saemann and Crooker (1999), that represented alternative views about accountants. Following the survey, participants were interviewed to further describe and/or ascertain how their perceptions of accountants were formed. Based upon summarization of survey data, the authors indicated little difference in perceptions between the two groups and suggested that contact with accountants had little influence over people's perceptions. Further, within the non-contact group, inconsistences between individual survey responses and interview data raised concern on the validity of using perception data driven by categories that were prompted by the researcher. Lastly, the authors noted that based upon interview data among the contact participants, the results suggested that perceptions of accountants are formed through individual "lived" experiences and that these perceptions are adjusted when influenced by two factors: (1) the nature and extent of contact with accountants, and (2) the roles and responsibilities of accountants at the participant's respective workplace. However, the authors indicated that contact with accountants may also lead to forming misperceptions or inaccuracies about accounting, which supports a continued need to proactively shape a broader understanding of the important role that accountants provide to society.

Christensen and Rhoades-Catanach (2019) surveyed participants at ten US doctoral consortia from 2010 to 2015 (n = 385, 31% response rate) to evaluate the benefits of the events for participants. Tabulated results indicated that attendees found the consortia helpful about research, networking, and career issues, but generally failed to provide value concerning teaching effectiveness. Recommendations included enhancing the teaching-related content and using the various consortia as a platform for expanding global connections through leadership in accounting.

Crawford and Wang (2019) explored the effects associated with a placement at elite accounting and investment banking firms based on the employment status of accounting and finance graduates (n = 198) from a UK university. An elite employer was considered as one of the big four accounting firms or largest ten investment banking firms. Results of the binary regression indicated that degree average at graduation was positively associated with employment at one of the four accounting firms or at one of the leading investment banks. Overall, the authors suggested that working class graduates who performed well in higher education had the same opportunities to achieve an elite placement as did their upper middle class counterparts.

Ahinful, Tauringana, Bansah, and Essuman (2019) surveyed accounting students (n = 500, 89% response rate) at five secondary schools and one tertiary school in Ghana, Africa to examine the effects of academic expectation, volition, academic interest, and learning attitude on academic performance. Only final year students at the secondary schools were included, and all academic levels were included at the tertiary school. Academic performance was self-assessed by students on a four-item, seven-point scale. Expectation was evaluated on a four-item, five-point scale survey. Volition, academic interest, and learning attitude were all evaluated on a three-item, five-point scale. Factor analysis was used to establish five distinct factors (academic expectation, volition, academic interest, learning attitude, and academic performance). Academic performance was regressed on academic expectation, volition, academic interest, and learning attitude, with binary controls for school level (secondary or tertiary) and gender. The overall results indicated that student performance was associated with academic expectation, volition, academic interest, and learning attitude. Both gender and school level were significantly associated with student performance.

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5.2. Student skills and characteristics

Bailey (2019) extended Bailey (2017) in an exploration of the additive effects of psychopathy and narcissism in their association with attitudes about unethical action. Junior level accounting students (n = 290, 93% usable responses) at 30 US universities participated in the survey study. Psychopathy was assessed though the Levenson Self-Report Psychopathy Scale (LSRP), and narcissism was assessed with the Narcissistic Personality Inventory (NPI). Attitudes about unethical actions were captures through two measures. Negative views of unethical behavior (DISSAPROVAL) was the average of seven, five-point scale questions. Negative views of unethical behavior designed to appeal to narcissistic tendencies (NARCACTS) was the average of two, five-point scale questions. Initial analyses show that DISSAPROVAL and NARCACTS represented unique constructs. Regressions using DISSAPROVAL and NARCACTS as dependent variables revealed that narcissism was associated with greater acceptance of unethical practices; the association of narcissism with acceptance of unethical practices was weaker than was psychopathy; and narcissism appeared in a lower frequency within the accounting student population than in the broader population.

Smith, Emerson, Haight, Mauldin, and Wood (2019) surveyed students (n = 546), both accounting majors and nonaccounting majors, enrolled in a variety of business courses from four US universities to evaluate the validity of the CD-RISC 10 questionnaire in assessing students' resilience to adversity. The CD-RISC 10 questionnaire was derived from the 25-item Connor-Davidson Resilience Scale (CD-RISC 25), which assesses stress coping ability.[8] ANOVA results indicated that resilience scores were associated with major and gender: female accounting majors exhibited lower resiliency than male accounting majors and both male and female nonaccounting majors. The authors reported assessments of the goodness-of-fit of the models, and concluded the scales had convergent and divergent validity.

5.3. Approaches to learning and assessment

Bobe and Cooper (2019) surveyed second-year financial and managerial accounting students at an Australian university (n = 274, 94% response rate) and an Ethiopian university (n = 193, 93% response rate) to explore the effect of language proficiency on learning approaches (deep or surface) and satisfaction with coursework. Language proficiency was measured in terms of natively speaking English. Students were identified as native English speakers if they had attended a high school where the medium of instruction was English (non-native English speakers otherwise). Satisfaction with the learning experience was self-reported on a four-point scale (strongly disagree to strongly agree). Students' approach to learning was assessed based on responses to 20 five-point scale questions designed to assess deep versus surface learning. Results of a PLS-SEM analysis revealed that English proficiency was positively associated with satisfaction with the unit/course and a deep learning approach.

Beatson, Berg, and Smith (2019) surveyed students at a New Zealand university enrolled in a mandatory first-year accounting course (n = 196, 48% response rate) to investigate the association of mindset and self-efficacy with final course grade. Mindset refers to how students viewed their learning along a continuum ranging from fixed to growth. A student with a fixed mindset is focused on outcomes, negatively affected by difficulties, and ignores helpful feedback. In contrast, a student with a growth mindset enjoys the challenges of learning and focuses on self-development. Self-efficacy reflects confidence in the ability to exert control over personal success. Both mindset and self-efficacy were assessed on a seven-point scale using 12 and 20 questions, respectively. Factor analysis yielded one latent factor construct for mindset and, consistent with prior literature, three for self-efficacy: (1) achievement, (2) organization, and (3) help-seeking. Based on an analysis of correlations, mindset was not significantly associated with final grade, and only the achievement factor within self-efficacy was significantly associated with final grade.

Helfaya (2019) surveyed first-, second-, and third-year students (n = 288, 54% response rate) enrolled in an accounting program at a British university to assess their perceptions of computer-based assessment (CBA) and computer-based feedback (CBF). First-year students were enrolled in accounting principles; second-year students were enrolled in intermediate financial accounting; and third-year students were enrolled in advanced financial reporting. The survey consisted of 32 five-point scale questions and was administered following the implementation of CBA and CBF in each course. A comparison of tabulated means showed that mean responses exceeded the scale mean of '3,' indicating that students viewed CBA and CBF favorably, had a preference for working online, and appreciated the timely feedback afforded via the online interface. Results of the Kruskal-Wallis tests indicated that all three groups included shared common views of the CBA and CBF exposure regardless of academic level.

Precourt and Gainor (2019) explored the association between classroom participation and learning outcomes of accounting students (n = 595, 100% response rate) at a private US university. Student participation grades were equally weighted as listed below.[9]

(1) *Frequency*: the number of a student's responses in relation to the average responses for the class.

[8] Connor and Davidson (2003) developed the 25-item Connor-Davidson Resilience Scale (CD-RISC 25) questionnaire that assesses stress arousal and resilience to adversity. The scale produced scores on five factors. Campbell-Sills and Stein (2007) developed a 10-item version of the CD-RISC questionnaire (CD-RISC 10), which makes the same assessment in a shorter instrument.

[9] Measurements were made in 20 accounting classes over a two-year period.

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(2) *Consistency*: the percent of class sessions for which the student exhibited at least one meaningful participation.
(3) *Attendance*: the percent of class sessions in which the student was present.

In an initial analysis, students' total participation grades were regressed on academic year, semester (spring, fall), class duration (50 min, 75 min, 150 min), major (accounting, other), class level (2000, 3000, 4000), and gender (M, F). Total participation grades were positively associated with academic year, spring semester, and longer class duration. The analysis was repeated using each component of the participation grade as the dependent variable and the results were consistent with the initial findings. In a second regression, exam grade replaced participation grade as the dependent variable, and participation grade was included as an independent variable. The regression was repeated where each component of the participation grade was separately included as an independent variable. In all models, the total participation grade and each of the components of participation were positively associated with exam performance. Spring semester, duration, major, and class level also maintained significance. In summary, overall participation, in all three metrics, was positively associated with improved academic performance.

Williams, Horner, and Allen (2019) employed action research and surveyed students (n = 118, 39% response rate) enrolled in an introductory accounting course at an Australian university about their perceptions (level of engagement, preference for classroom style) of traditional and flipped approaches to instruction. The traditional cohort (n = 110, 43% response rate) received exclusively face-to-face instruction that was in a traditional format in weeks 1–11 and then in a flipped format in week 12. The online cohort (n = 8, 19% response rate) received exclusively online instruction that was in a partially-flipped format in weeks 1–11 and then in a flipped format in week 12. The primary element of the flipped format was the availability of pre-recorded lectures prior to the class session. The authors' interpretation of the analysis of the differences-in-means indicated that students exposed to the flipped delivery prior to week 12 (online cohort) reported the flipped approach in week 12 more valuable.

Fortin, Deslandes, Callimaci, and Desforges (2019) surveyed undergraduate accounting students (n = 534, 85% response rate) at a Canadian university to ascertain student performance and satisfaction with two alternative blended delivery formats. The F2F + format is a traditional face-to-face delivery format supplemented with various online learning activities and assignments. The Online + format is the where some of the face-to-face interaction is also replaced with online delivery. Twelve course sections were used in the study: intermediate II and advanced accounting each with two F2F + and two Online + sections, and corporate income taxation and advanced accounting information systems each with one F2F + and one Online + sections. Data were collected through two survey instruments. The first survey was administered during the first two weeks and addressed student characteristics and motivations of student in the two delivery formats. The second survey was administered from the 12th, 13th, and 14th week of the term and collected student's perceptions of their courses along with number of study hours per week. Regression analysis using overall course score as the dependent variable revealed significant items including GPA, gender, hours studied per week, and indicator variables for each of the three courses. Fortin, Viger, Deslandes, Callimaci, and Desforges (2019, 353) concluded that "students in advanced accounting courses with equivalent content and design perform similarly and have the same level of course satisfaction across delivery formats."

Nouri and Domingo (2019) examined the effect on student performance of transferring from into a four-year college from a two-year college (total student n = 222; transfer student n = 27; native, non-transfer student n = 195) at a US college. To fulfill the four-year degree requirements, all students must complete ten accounting courses at the college, including the second principles of accounting course. Two GPA metrics were computed. A during-the-shock GPA was computed for the second accounting principles course, intermediate accounting I and cost accounting. An after-the-shock GPA was computed from all other accounting courses starting the spring of the junior year. Control variables were for gender and aptitude (SAT score). With shock score at the dependent variable, native female, native male, and transfer female had significantly higher scores than transfer male, and those results held for the after-the-shock courses.

Dong, Bai, Zhang, and Zhang (2019) investigated the success of Chinese accounting students in learning IFRS relative to their learning approaches. Participants in the study were third and fourth year undergraduate students (n = 402, 88% response rate) from various Chinese universities that were also registered as Association of Chartered Certified Accountants (ACCA) students. In the initial analysis, learning approach was regressed on gender, ACCA level, English proficiency, adaptability, and preparation time. Students completed the Revised Two Factor Study Process Questionnaire to determine if their preferred learning approach was deep or surface. Level was a binary variable indicating whether the student was studying at the fundamentals level or professional level. English competency was measured with the College English Test Band Four (coded as 1–6). Regression analyses showed that deep approaches were more frequently adopted by those at the ACCA-professional level, which the authors indicated exhibited greater adaptability and investing more preparation time. Deep approaches were associated with better outcomes for all classifications in the study.

Mesa (2019) presented a framework for teaching data analytics in an upper level accounting course through understanding how students learn those skills. He discussed the seven properties of sensemaking (identity, construction, retrospective, enactive, social, ongoing, cues, plausibility) and described how those properties can be applied through case study to amplify student analytic processes. The framework was implemented in a senior level accounting data analytics course. Students were assigned work groups for the case. Weekly survey-based student feedback was used to identify which of the sensemaking properties had been achieved. The feedback was summarized for weeks 1–4 and began with uncertainty in week one; by week two the groups were filtering data and finding patterns; in week three plausible outcomes were identified; and by the

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Table 13
Overview of articles about faculty (Section 6).

	Reference	Type*	Topic
6.1.	***Research***		
	Apostolou et al. (2019)	D	Accounting education literature review (2018)
	Bernardi and Collins (2019a)	E	Faculty rankings in accounting education journals
	Bernardi and Collins (2019b)	E	Faculty rankings in accounting education journals
	Santoso & Cahava (2019)	E	Plagiarism by accounting lecturers in Indonesia
6.2.	***Teaching***		
	Allen (2019)	D	Inspiring teaching effectiveness
	Bujaki et al. (2019)	E	Faculty perceptions of academic dishonesty
6.3.	***Accounting department management***		
	Noland et al. (2019)	D	Accounting department chair workload
	Norman and Bagranoff (2019)	D	Engagement characteristics of advisory councils
	Reinstein et al. (2019)	D	Advisory councils may improve ethical awareness
	Snead et al. (2019)	D	Advisory councils and curricular change

* Empirical (E) or descriptive (D) article.

end of week four clear recommendations emerged. Individual group dynamics were also discussed as were recommendations for implementation of the approach. The framework is intended to reinforce many of the activities consistent with a deep learning approach.

Stephenson (2019) investigated students' perceptions of their cognitive learning style relative to assessment methods and learning environment. Junior and senior accounting students in two upper level cost accounting courses at a US university were surveyed (n = 124, 87% response rate) regarding preferred learning style, preferred learning assessments, and preferred learning modes. The author concluded that, across all preferred learning styles, students preferred a participative learning environment and preferred assessments based on individual case studies.

6. Faculty

Table 13 identifies 10 articles (four empirical and six descriptive) related to faculty classified as research, teaching, and accounting department management, including the use of advisory councils. This section contains 18% of the articles reviewed for 2019, compared to 20 articles in 2018 (29%) and 12 articles (20%) in 2017. Topics included plagiarism by faculty and students, and faculty research productivity. Three articles examined the role of the accounting department advisory council, and one addressed the demands on being chair of an accounting department.

6.1. Research

Apostolou, Dorminey, Hassell, and Hickey (2019) summarized articles published in five accounting education journals during 2019: (1) *Journal of Accounting Education*, (2) *Accounting Education*, (3) *Advances in Accounting Education: Teaching and Curriculum Innovations*, (4) *Issues in Accounting Education*, and (5) *The Accounting Educators' Journal*. Articles were categorized as empirical, descriptive, instructional resource, or case. The authors presented an analysis of research rigor and offered suggestions for future research.

Bernardi and Collins (2019a) compiled a list of accounting-education articles (articles and cases) for the 25-year period 1993–2017 in 13 journals (nine active and four no longer published)[10] identified in Bernardi, Zamojcin, and Delande (2016). The list of publications was used to create accounting program rankings of accounting education research productivity in the top-50 programs. Program rankings were provided for the last six years, last twelve years, and all 25 years, with counts for full-credit rankings for each coauthor and coauthor-adjusted rankings, adjusted for quality ratings, adjusted for time with a doctorate (PhD/DBA), and adjusted for program size. A large amount of descriptive data was provided, with 18 different program rankings based upon various partitions. For example, Villanova University was ranked in all 18 analyses: first in full-credit rankings, first in coauthor-adjusted rankings, first in both categories when adjusted for journal quality, and 23rd and 28th in both categories when adjusted for both journal quality and PhD/DBA time. Case Western Reserve University also appeared in 18 rankings, while nine other programs appeared in 16 or 17 of the program rankings. Faculty interested in benchmarking accounting program education research productivity may find this article to be useful.[11]

[10] Active journals included *Issues in Accounting Education; Journal of Accounting Education*; *The Accounting Educators' Journal; IMA Educational Case Journal; Accounting Education: An International Journal; CAAA Accounting Perspectives; AIS Educator Journal; Global Perspectives on Accounting Education;* and *Advances in Accounting Education.* Journals no longer published included: *International Journal of Accounting Education & Research; Journal of Accounting Case Research; Hasselback's Accounting Perspectives;* and *Compendium of Classroom Cases.*

[11] Bernardi and Collins (2019b) provided accounting education ranking data for individual authors.

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Bernardi and Collins (2019b) examined 2,392 publications for the period 1993–2017 in 13 accounting education journals (four of which no longer are published)[12] for authors in several countries (Australia, Canada, Ireland, New Zealand, UK, US). The primary goal was to provide benchmark information by individual author on the number of articles published (both full credit and coauthor adjusted). Authors were partitioned by career stage (junior, mid-level, senior) and time (years since PhD/DBA graduation or first accounting education publication). Articles were standardized for journal quality and partitioned by country and type, case or other (cases: $n = 873$, 37% of articles; other: $n = 1,159$, 64% of articles). Regression results documented that time since PhD/DBA or first publication was significantly associated with number of particles published when adjusted for journal quality. Extensive tabulated data were presented. Appendix A of the article provided publication metrics for the 40 individual authors with the most publications, partitioned by faculty status and publication type (case and other). The results could be used to benchmark accounting education publication activity by individual faculty members.

Santoso and Cahaya (2019) surveyed accounting lecturers ($n = 108$, 72% of questionnaires received) in Indonesia regarding possible factors influencing plagiarism by accounting lecturers. The authors were motivated by the wide-spread perception of occurrence of accounting fraud, plagiarism by accounting lecturers, with plagiarism associated with the need to publish for advancement. Using the fraud triangle for motivation, 32 questions related to five independent variables: financial pressure, working pressure, technological development, lack of control and monitoring, and unfair competition. In the multiple regressions, the dependent variable was intent to plagiarize. Unfair competition and working pressure were significant variables associated with intent to plagiarize.

6.2. Teaching

Bujaki, Lento, and Sayed (2019) surveyed US accounting faculty ($n = 327$, 6% response rate) to investigate academic dishonesty in accounting education, and they used the fraud triangle as motivation. The fraud triangle (incentive/pressure, opportunity, rationalization) was developed to help explain financial statement fraud. The authors used principal components analysis on 20 survey question responses, 12 regarding incidence of academic dishonesty and eight regarding motivators of academic dishonesty. Each of the three fraud triangle items was subdivided into two subcomponents to address academic dishonesty: (1) pressure (faculty driven pressure/student driven pressure); (2) opportunity (detective / preventive controls); and (3) attitude (faculty-driven attitude/student-driven attitude). A four-quadrant risk map was created, classifying the survey questions as to the impact of risk and the likelihood of risk occurring. Descriptive information about each question's incidence, frequency, significance, and impact was provided. For example, "getting someone else to pretend they are the student (impersonation) during a test" rated as having high significance of risk, but low in likelihood of risk occurring, and "continuing to write after the test time has expired" was high in the likelihood of the risk occurring but relatively low in impact of risk. The authors labeled items in the four quadrants as (1) accept, but monitor, (2) manage and monitor, contingency planning, (3) immediate action, extensive controls essential, and (4) control efforts worthwhile. A second four-quadrant map proposed actions that could be taken by accounting faculty, classified as least effective / most effective, and promote more usage of controls / continue to extensively use these controls. The authors labeled items in the four quadrants as (1) continue to extensively use these controls, (2) promote more usage of these controls, (3) use according to specific instructor needs, and (4) consider reduced efforts, re-allocate time to more effective controls. For example, "changing assignments and exams each year in order to limit student's access to past materials" was classified as the most effective control, and the authors noted that faculty should continue to extensively use the control.

Allen (2019) used a short story to inspire teaching effectiveness in the context of realistic situations. Lessons described included recognition of student potential, build a positive rapport with students, and acknowledge that humans make mistakes and can learn from them. Allen (2019) described three (nonaccounting) outstanding teachers and the attributes that each exhibited.

6.3. Accounting department management

Norman and Bagranoff (2019) surveyed 90 US AACSB accredited accounting programs, 17 private and 73 public schools, (useable response rate 51%) about having a functioning accounting Advisory Council. Data were obtained regarding various organizational characteristics of the Advisory Council (e.g., bylaws or charter, 61%, mission statement, 47%, date Council formed). Advisory member characteristics included number of members, percent alums, percent in public accounting, length of service, were members charged a fee, amount of fee, how selected, and considering diversity. Meeting characteristics included number of meetings per year, length of meeting, types of presentations at meetings, discussion topics used to solicit Council advice, discussion of state of accounting profession, and other activities. Extensive engagement characteristics were reported. Schools that have Advisory Councils and those considering creating an Advisory Council will find considerable information in the article.

[12] *Issues in Accounting Education, Journal of Accounting Education, The Accounting Educators' Journal, IMA Educational Case Journal, Accounting Education, CAAA Accounting Perspectives, AIS Educator Journal, Global Perspectives on Accounting Education,* and *Advances in Accounting Education: Teaching and Curriculum Innovations.* Journals included that are no longer published: *International Journal of Accounting Education & Research, Journal of Accounting Case Research, Hasselback's Accounting Perspectives,* and *Australian Journal of Accounting Education.*

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Snead, Coleman, and McKinney (2019) discussed the process at one US public university of using an Accounting Advisory Board (AAB) to seek input regarding proposed changes to the Master of Accountancy (MAcc) curriculum. The article provided extensive discussion of the proposed curriculum changes, the process of seeking AAB input, and the follow-up. AAB rankings of the importance of a large number of specific course topics were reported. The revised curriculum included eight required courses, and two electives: required courses included advanced financial reporting, professional and ethical issues, business assurance services, advanced AIS, information system audit and control, business intelligence/data analytics, and capstone course, and one of the electives was IT security. The wealth of information in the article cannot be summarized easily, and any school that is considering revising its MAcc curriculum and seeking AAB input should read the article.

Reinstein, Churyk, Taylor, and Williams (2019) reviewed US state CPA society course offerings related to continuing ethics professional education. The analysis indicated that the requirements emphasized memorization much more than ethical reasoning. The article had a large amount of information related to ethical reasoning, and it described the rules versus principles based orientation of ethics education, the historical development of ethics education, state CPA policies regarding ethics licensing requirements, postgraduate ethics education, and use of Advisory Councils to strengthen students' ethical skills. The authors concluded that continuing education courses should increase emphasis on ethical reasoning in order to improve ethical decision making, and that Advisory Councils can help faculty contribute to improving students' ethical reasoning skills.

Noland, Mauldin, and Braun (2019) surveyed US accounting department heads (n = 144, 16% response rate) regarding workload and various aspects of being an accounting department chair. The Hasselback Accounting Faculty Directory (2020) was used to identify accounting department heads in the years 2016–2017. Responses were separated into three groups: AACAB accounting and business accreditation (n = 54), AACSB business accreditation (n = 49), non-AACSB accreditation (n = 41). Survey questions pertained to training (two questions), teaching responsibilities (five questions), research responsibilities (four questions), service (thirteen questions), major difficulties (nine items), major challenges (five items), compensation (six questions), and reasons for becoming department head (four items). The article will be interesting to faculty who are considering becoming a department head. Recruiting and managing faculty were noted as a particularly difficult aspects, as were dealing with budgets, administration issues, managing conflicts among faculty and staff, and promotion and tenure issues.

7. Summary and suggestions for future scholarship

7.1. Summary

We present a summary of accounting education publications by article type in Table 14 for the 29-year period (1991–2019). A total of 81 articles were published in 2019 in five accounting education journals, which is 20 fewer than 2018 and 22 fewer than 2017. The decline occurred in both empirical and descriptive articles (55 in 2019 versus 68 in 2018 and 61 in 2017) and instructional resource articles and cases (26 in 2019 versus 33 in 2018 and 42 in 2017). The proportion of empirical articles was 38%, which is much lower than the 29-year average of 49%. Despite three decades of encouragement to produce more empirical evidence to improve accounting education, empirical work may be in decline, with the percentages for the last four years being below the 29-year average. Apostolou, Dorminey, Hassell, and Hickey (2019)

Rebele and St. Pierre (2015) analyzed the literature review articles that appeared in *Journal of Accounting Education* for the period 1991–2015. They observed what they referred to as stagnation in research, noting a dearth of rigorous empirical work (i.e., reliance on survey research without experimental or quasi-experimental methods). They emphasized that research must take a holistic approach to addressing overarching changes to the accounting profession. Rebele and St. Pierre (2015, 136) stated the following:

> . . . accounting education research should be important to those of us who are responsible for providing our students with the best education possible. We should not tolerate or accept stagnation in our literature.

Table 14
Publications by article type (1991–2019).

	Total articles	Empirical articles		Nonempirical articles (c)	
Year		#	%	#	%
2019 (Table 5)	81	31	38%	50	62%
2018 (Table 5)	101	46	45%	55	55%
2017 (Table 5)	103	40	39%	63	61%
2016 (a)	108	48	44%	60	56%
1991–2015 (b)	1,580	792	50%	788	50%
Total (1991–2019)	1,973	957	49%	1,016	51%

(a) Apostolou et al. (2017).
(b) Rebele & St. Pierre (2015, 130).
(c) Includes descriptive articles, instructional resources, and cases.

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The concerns expressed by Rebele and St. Pierre (2015) persist. Table 14 reports the comparison of empirical articles versus nonempirical (descriptive articles, instructional resource articles, and cases) over time, for 2019 compared to 2018, 2017, 2016, and 1991–2015. Table 14 documents a decreased percentage of empirical accounting education research and corresponding increased percentage of nonempirical accounting education research.

One hundred ninety-three authors from institutions around the world contributed to the 81 accounting education articles published in the five accounting education journals in 2019 across the traditional lines of inquiry, including instructional resources and cases. Fifty-five empirical and descriptive articles were published in 2019 (68% of 81 total articles) as compared to 68 (67%) in 2018 and 61 (59%) in 2017.[13] Appendix A summarizes the eight articles (10% of total 81 articles) classified as instructional resources. We tabulated these articles to specific content area. Appendix B includes the 18 articles identified as cases (22% of total 81 articles), which use actual or hypothetical information to teach a content area. Auditing and forensic accounting (39%) and financial accounting (39%) dominate the topics.

The remainder of Section 7 is organized as follows. Section 7.2 discusses research rigor of the 31 empirical articles summarized. Section 7.3 provides some suggestions for avenues of inquiry for future scholarship to continue to build upon the extant accounting education knowledge base and address emerging issues facing the accounting profession.

7.2. Research rigor

We identified three empirical articles published in 2019 worthy of note for their rigor and design. Bailey (2019) is an example of a well-conducted analysis with proper technique to isolate the phenomenon of interest. His use of a survey instrument is exemplary, and his analyses are exhaustive and well-presented, extending prior similar empirical work (Bailey, 2017). Gaynor et al. (2019) conducted an experiment that associated macro variables with CPA exam test-taking, an interesting design with data available from NASBA. Opdecam and Everaert (2019) is an example of a well-executed quasi-experimental design that investigated the implementation of choice-based learning.

Table 7 reports the data acquisition methods for the empirical articles published in 2019. Consistent with prior reviews we note the continued reliance on survey data (n = 22, 71% of the empirical articles). Use of a survey collection approaches is useful when other sources of data are not available or when the primary interest is perceptions of the respondents. Unless the survey is collecting objectively measured and verifiable data elements, survey data contains biases inherent in the sample. We recommend caution when using student-sourced survey data regarding programmatic, curricular, or instructional delivery success. Student preferences or opinions about their learning, which may be interesting and useful, is not a valid measure, or even a proxy, for objective evaluation of learning outcomes achievement. Threats to interpretation exist, such as the student's desire to please the experimenter (teacher). Without objective measurement, the researcher is not augmenting the body of knowledge. While perceptions are important, they are insufficient in determining whether a strategy is truly effective. With rare exception, students simply do not possess the training, experience, or objectivity to provide a meaningful assessment of pedagogical success. It may be that the results of a pedagogical innovation do not lend themselves to direct measurement. Knowing how students perceive an intervention is not the same as understanding what and whether they have learned.

For the academy to advance in the area of education, we must know what factors, delivery modes, and pedagogical innovations induce a meaningful improvement in learning outcomes. This goal necessitates that the educational experience be viewed as the experimental treatment and that the success of that treatment be demonstrable through a pre- and post-test experimental approach or other appropriate design. These approaches are more difficult to implement, but are the only way to know if the treatment is effective. Collectively, the academy must decide if the inquiry regarding accounting education is worthy of the effort required to precisely measure and assess efforts.

Articles in the current review demonstrate a sustained concentration in the more rigorous analysis techniques. Studies using regression (n = 14, 45%), ANOVA (n = 6, 19%), and path analysis (n = 3, 10%) constituted 23 (74%) of the 31 empirical articles. These rigorous empirical analysis methods, properly applied with controls and precisely measured data, are critical to the advancement of the body of knowledge. We applaud continued use of these methods.

Interpretation of the empirical results must be exacting and disciplined. We offer a cautionary statement regarding the identification of empirical support for rejection of null hypotheses. We observed some lax interpretations of statistical results. Authors should be sure that the statistical performance of the model can be interpreted as significant. We strongly recommend reporting the actual p-value to permit the reader to select the threshold of significance, particularly when values that exceed $p > 0.05$ are used as evidence to support an educational strategy.

We identified at least two examples of confusing interpretation of statistical results. First, a study conducted an ANOVA and found that the model failed significance at the conventional levels. Interpretations of the mean values of the data elements provided conclusions as if the model was significant. In this case, it is incumbent on the author(s) to describe why the subsequent tests were conducted when the overall model was not significant (e.g., had the researcher *a priori* intended to conduct the planned comparisons regardless of the significance of the ANOVA). Second, a study claimed support for

[13] Data available in Apostolou et al. (2019).

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rejection of the null hypothesis at $0.05 < p > 0.10$, which is suggestive, but not strong evidence to reject the null hypothesis. Further, sometimes conclusions were made without presentation of supporting statistical tests. We encourage authors, referees, and editors to pay particular attention to the statistical inferences in empirical data and to be precise in describing the results. As an example, researchers may use a regression model based upon prior research, and may or may not have a strong theoretical model. Regression models test associations. If an independent variable of interest is significantly associated with a dependent variable of interest, that is what the test indicates, a significant association. Too often, accounting educators will interpret results as casual (e.g., performance was caused by the intervention). Again, we caution researchers, reviewers, and editors to ensure that the results described reflect the statistical analysis performed. In the absence of a strict experimental approach (pre-, post-test, with control group), conclusions regarding causation are untenable.

7.3. Suggestions for future scholarship

We present ideas research to extend the knowledge base in accounting education. Cases and instructional resources on a range of topics are useful to educators and are encouraged. Descriptive articles should address and explore new issues and best practices. Empirical articles that identify and isolate variables of interest within a theoretical construct are strongly encouraged. For those pursuing a research agenda in accounting education, we suggest resources for launching ideas and developing projects.

The accounting profession has witnessed many initiatives aimed at improving accounting curriculum, pedagogy, and assurance of learning. We have observed over time that authors tend to make passing citations to outdated educational initiatives, without extracting ideas from the most current agenda. The driving force in the US currently is the Pathways Commission (AAA, 2018),[14] which can serve as a context for contemporary accounting education research. Black (2012) offered a comprehensive historical narrative of the events leading to the current Pathways Commission agenda. Given that research is informing change in accounting education, planned projects should reflect on the professional history and consider how a current project integrates with those ideas and extends the accounting education knowledge base. *The Routledge Companion to Accounting Education* (Wilson, 2014) is a resource with state-of-the-art appraisals from experts across accounting education topical areas at that point in time, which can be a starting point for identifying changes since then.

A current topic of interest to accounting educators is the evolution of the CPA exam. Tysiac (2019) described how the CPA exam likely will be changing to more accurately reflect accounting practice and what a new CPA encounters in the early years of a career. The notable areas include technology, data analytics, and automation. Proposals for exclusion include IFRS, estates and trusts, and derivative financial instruments. In a separate CPA Evolution project,[15] NASBA and the AICPA are engaged in proposing changes to the CPA exam based primarily on advances in technology. While not all students choose to take the CPA exam, accounting degree programs are obligated to ensure that those interested in the CPA exam have the opportunities to obtain requisite skills and knowledge in accounting curriculum requirements. These changes no doubt also influence faculty hiring choices and doctoral student preparation for the future.

For the first time in this series of literature reviews, no empirical or descriptive articles were published on instruction by content area (Section 3). Articles that describe successful practices or test interventions within specific content areas are essential to expanding our knowledge base. We encourage faculty to contribute ideas about how to improve the way specific course content is best taught and learned. This area of inquiry is especially important given that technology and course delivery models impact the accounting classroom in important ways. No articles appeared in 2019 on the topic of assessment or assurance of learning, despite its critical importance in accountability to institutions and accreditation bodies.

In sum, researchers should identify (1) what has been done, (2) what needs to be understood, and (3) what research can move accounting education forward in its understanding of how to educate accountants for the future. Accounting education research is now a mature discipline after three decades of articles in several major journals with contributions by hundreds of academics. We are impressed with the movement toward geographic diversity of the samples during this time. However, the rapid changes in technology and how teaching and learning occur requires a thoughtful reflection about how to contribute to the accounting education knowledge base. The decline in empirical articles is concerning considering the need for understanding of the value of interventions. Indeed, it may be time for the profession to develop an agenda for future research that connects past, present, and future of the profession.

Appendix A. Instructional resources organized by primary content area

During 2019, the five journals covered by this literature review published eight instructional resources, constituting 10% of the 81 articles published. These resources included innovative ways to teach content. We identified the instructional

[14] http://commons.aaahq.org/groups/2d690969a3/summary.
[15] evoluatioofcpa.org.

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resource articles in five primary content areas: (1) auditing, (2) cybersecurity, (3) financial accounting, (4) managerial accounting, and (5) taxation.

Instructional resources by primary content area

Auditing

1. Bordeman, A., & Westermann, K. D. (2019). The professional ethics exam and acts discreditable: An introductory assignment. *Issues in Accounting Education*, *34*(4), 39–53.

Cybersecurity

2. Roohani, S. J., & Zheng, X. (2019). Using ten teaching modules and recently publicized data-breach cases to integrate cybersecurity into upper-level accounting courses. *Advances in Accounting Education: Teaching and Curriculum Innovations*, *23*, 113–130.

Financial accounting

3. Botafogo, F. (2019). The syntax of the accounting language: A first step. *Accounting Education*, *28*(6), 582–596.
4. Choi, A., Schuele, K., Sheldon, M. D., & Webinger, M. (2019). Examining the use of accounting information in planned careers: A group project to more fully engage students in introductory accounting courses. *The Accounting Educators' Journal*, *29*(1), 115–135.
5. Hepp, J. (2019). Understanding credit losses. *Journal of Accounting Education*, *49*, 100640.
6. Porter, J. C. (2019). Beyond debits and credits: Using integrated projects to improve students' understanding of financial accounting. *Journal of Accounting Education*, *46*, 53–71.

Managerial accounting

7. Schoute, M. (2019). Teaching Python to management accounting students: An illustration using support department cost-allocation methods. *The Accounting Educators' Journal*, *29*(1), 137–161.

Taxation

8. Key, K., & Mulligan, E. (2019). Student group work across borders: A teaching innovation and exploratory study. *Advances in Accounting Education: Teaching and Curriculum Innovations, 23*, 99–112.

Appendix B. Cases organized by primary content area

During 2019, the five journals covered by this literature review published 18 cases (22% of the 81 articles published). We identified the cases in alphabetical order within five primary content areas: (1) auditing and forensic accounting, (2) data analytics, (3) financial accounting, (4) managerial accounting, and (5) taxation.

Cases by primary content area

Auditing and forensic accounting

1. Bagley, P. L., Barnes, B. G., & Harp, N. L. (2019). Evaluating risk and processing integrity controls over spreadsheets: An educational case. *Issues in Accounting Education*, *34*(3), 21–40.
2. Blix, L. H., Blix, W., Edmonds, M., & Keenan, E. S. (2019). Southern Industries: A realistic simulation of substantive testing for accounts receivable. *Issues in Accounting Education*, *34*(4), 1–13.
3. Caplan, D. H., Dutta, S. K., & Marcinko, D. J. (2019). Unmasking the fraud at Toshiba. *Issues in Accounting Education*, *34*(3), 41–57.
4. Chui, L., & Matson, D. M. (2019). Embezzlement at the Grandview Community Recreation Association. *Issues in Accounting Education*, *34*(2), 41–59.
5. Edmonds, M., Miller, T., & Savage, A. (2019). Accounts receivable: An audit simulation. *Journal of Accounting Education*, *47*, 75–92.
6. Grace, E. V., & Davis, A. (2019). Who's in control of the ark? A study of internal controls in operating and auditing a small preschool. *Issues in Accounting Education*, *34*(2), 23–39.
7. Prewett, K., Schaefer, T. J., & Wengler, D. (2019). WrecksAll Drug Company. *Issues in Accounting Education*, *34*(4), 31–38.

Data analytics

8. Presley, T. J. (2019). A risk based approach to large datasets: Analysis of time series data for a large merchandising firm. *Journal of Accounting Education*, *49*, 100639.

Financial accounting

9. Cantrell, B. W. (2019). Generic Bank: Accounting for debt securities sales and impairments. *Issues in Accounting Education*, *34*(4), 15–29.

(*continued on next page*)

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Appendix B (*continued*)

Cases by primary content area

10. Churyk, N. T., Yu, S., & Rick, B. (2019). A class exercise: Accounting for stock option modifications and option service and performance conditions. *Advances in Accounting Education: Teaching and Curriculum Innovations, 23,* 83–98.
11. Gray, D. L., & Daly, A. L. (2019). Home Technology Innovations, Inc.: Transitioning to the new leasing standard. *Journal of Accounting Education*, *49*, 100636.
12. Gujarathi, M. R. (2019). Diamond Foods, Inc.: A comprehensive case in financial analysis and valuation. *Issues in Accounting Education*, *34*(1), 13–33.
13. Hughes, S. B., Lowensohn, S., & Tefre, E. (2019). Portable Power: An application of IAS 16 including self-constructed assets and the revaluation model. *Issues in Accounting Education*, *34*(2), 61–71.
14. Jones, J. P., Long, J. H., & Stanley, J. D. (2019). Pane in the glass: A review of the accounting cycle. *Issues in Accounting Education*, *34*(1), 35–50.
15. McNellis, C. J., & Teets, W. R. (2019). Is a reported goodwill impairment loss really a goodwill impairment loss? A financial reporting case on evaluating the efficacy of authoritative guidance. *Issues in Accounting Education*, *34*(3), 59–69.

Managerial accounting

16. Ayres, D., & Stanfield, J. (2019). Pulling it all together: ACME trailers, a costing case. *Journal of Accounting Education*, *46*, 72–88.
17. Wakefield, J., & Thambar, P. (2019). Applying target costing to the service sector: Sunline Auto Insurance case. *Issues in Accounting Education*, *34*(3), 1–19.

Taxation

18. Albring, S. M., Elder, R. J., & Franklin, M. A. (2019). Transocean and the history of tax inversions. *Issues in Accounting Education*, *34*(1), 1–12.

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